

REMARKS

Preliminarily, Applicants respectfully request the Examiner to approve the drawings filed January 4, 2002.

Review and reconsideration on the merits are requested.

Claim 17 was rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent 6,238,535 to Taniguchi et al. The Examiner considered Taniguchi et al. (Fig. 10) as disclosing a limit-current type hydrocarbon sensor meeting each of the structural features of the rejected claim. Because claim 17 is an apparatus claim, the Examiner has not given any patentable weight to recited function.

Claim 17 is written in means-plus-function format. Application of a prior art reference to the means-plus-function limitations of claim 17 requires that the prior art element perform the identical function specified in the claim. See MPEP § 2182, pg. 2100-220 (February 2003). That is, with respect to means-plus-function limitations, even if "the patent's structure is capable of being manipulated to carry out the claim function", this cannot be a basis for rejecting claim 17.

For example, in the hydrocarbon sensor of Fig. 10 of Taniguchi et al., hydrogen or water vapor, generated at cathode 4 is passed through proton-conductive layer 50 (by applying a constant voltage E_p across inner and outer electrodes 51 and 52, respectively), partial pressure of oxygen in the cathode chamber is reduced, and as a result, an output corresponding to only the change in HC can be obtained (column 12, line 56-column 13, line 6). Thus, the hydrocarbon sensor of Fig. 10 of Taniguchi et al. does not perform the function of "adjusting the hydrogen concentration of the gas to be measured", or perform the function of "reacting CO contained in

the adjusted gas with a hydrogen-containing substance to thereby generate hydrogen gas" or perform the function of "dissociating the hydrogen gas produced by the reaction of CO with the hydrogen-containing substance to thereby generate protons" as claimed in claim 17.

Notwithstanding the foregoing, claim 17 has been amended to recite a structure of two measurement spaces connected by a diffusion-controlling section. The subject amendment is respectfully submitted as distinguishing over the prior art of record because "none of the prior art discloses or suggests a structure of two proton conducting electrolytes and two measurement spaces connected by a diffusion-controlling section" as indicated by the Examiner in the paragraph bridging pages 4-5 of the Office Action of September 10, 2003.

Withdrawal of the foregoing rejection is respectfully requested.

Claims 14-20 were rejected under 35 U.S.C. § 112, second paragraph. As to claims 14, 15, 17 and 20, the Examiner points out that these claims (i) call for decomposing, dissociating or reacting the hydrogen with another element to generate protons. The Examiner questions accuracy of the claim language and asks how it is that hydrogen is decomposed or dissociated. As to claims 18 and 19, the Examiner points out that (ii) these claims lack antecedent basis for "the first measurement chamber".

In response, claims 14 and 15 have been amended to delete "decomposed or reacted with another element". Claim 16 has been amended to delete "decomposed". Claims 17 and 20 have been amended to delete "decomposing". As such, amended claims 14-16 recite that hydrogen is dissociated to generate protons, whereas claims 17 and 20 require dissociating the hydrogen gas produced by reaction of CO with a hydrogen-containing substance to thereby generate protons.

Further in this regard, Applicants note that "dissociated and decomposed" are chemically the same, and agree with the Examiner that "reacted with another element" should be deleted. When one hydrogen molecule (H_2) is dissociated or decomposed, it produces two protons ($2H^+$).

Claims 18 and 19 have been amended to correct antecedent basis. Particularly, "first measurement chamber" has been changed to "first measurement space".

It is respectfully submitted that the claims as amended fully comply with 35 U.S.C. § 112, and withdrawal of the foregoing rejection is respectfully requested.

In response to the Examiner's inquiry regarding designation of various elements at pages 10-11 of the specification, Applicants respond as follows.

Reference numerals 17 and 18 have been amended to read "second" constant-voltage source and "second" ammeter. Support is found, for example, at page 16, lines 8-10 of the specification.

In response to the Examiner's inquiry, reference number 37 has been redesignated as a "third electrometer" so as not to confuse with first electrometer 22 and second electrometer 28 of Fig. 7.

Withdrawal of all rejections and allowance of claims 1-21 is earnestly solicited.


In the event that the Examiner believes that it may be helpful to advance the prosecution of this application, the Examiner is invited to contact the undersigned at the local Washington, D.C. telephone number indicated below.

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Application No. 10/035,248

Q67857

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Respectfully submitted,



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